

San José State University
College of Science / Department of Computer Science
CS 268, Topics in Wireless Mobile Networking, Spring 2018

Course and Contact Information

Instructor:	Dr. Mike Wu
Office Location:	MacQuarrie Hall 214
Email:	Ching-seh.Wu@sjsu.edu
Office Hours:	Wednesday 1:15PM – 2:15PM Thursday 2:45PM– 3:45PM (please drop me email in advance with time info and subject)
Class Days/Time:	MW 12:00PM–1:15PM
Class Room:	MacQuarrie Hall 422
Prerequisites:	CS 158A or instructor consent

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on MySJSU Canvas.

You are responsible for regularly checking with the email system through **MySJSU** at <http://my.sjsu.edu> to learn of any updates.

Course Description

Advanced topics in the area of wireless mobile networking. Content may differ in each offering. Possible topics include though not restricted to: wireless local and metropolitan area networks, mobile Internet, sensor networks, mobile computing, wireless network security. Repeatable when topic changes.

This semester, topics include the following (time permits):

- Introduction and mobile network trends.
- Introduction to wireless coding, modulation, and signal propagation.
- Wireless LAN, wireless PAN, vehicular and regional area networks, gigabit wireless networks.
- Internet of Things (IoT) and Bluetooth.
- Cellular Networks: LTE Advance and 5G.
- Software-defined mobile networks
- Mobile clouds: enabling technologies.
- Mobile clouds: social aspects.
- Mobile clouds: energy efficiency and applications.
- Security issues

Course Learning Outcomes (CLO)

Upon successful completion of this course, students should be able to:

1. **CLO 1** - Understand the above covered topics through completion of homework, quizzes, advanced research papers, and examinations.
2. **CLO 2** - Successfully complete labs and programming projects on advanced mobile networking and cloud technologies.
3. **CLO 3** - Work in a (1 or 2 people) team to complete group projects, including independent research, oral presentation, and programming on a latest advancement in mobile networking.

Required Texts/Readings

Textbook

- There is no one textbook book that covers the breadth of the material in this course.
- There will be a reading list with each lecture.
- The list will include some books, web sites, and Wikipedia links.
- Mostly books available as “Safari Books” will be used.
- SJSU has a subscription to Safari Books, All students and faculty have free online access at <http://library.sjsu.edu/ebooks/san-jose-state-university-ebooks>

Course Requirements and Assignments

Assignments

You are expected to learn all of the material presented in the lectures. Assignments include written and programming. Assignments must be turned in on time; late submission will not be accepted with the exception of medical emergencies or similar exceptional circumstances that must be discussed in advance with the instructor. All assignments are due at the beginning of the class period on the announced due date.

Mid-Term and Final Exams

Exams will consist of questions and problems aimed at assessing student mastery of course topics. Conceptual questions may be in the form of essay or multiple-choice format and questions that require pseudo code and/or computations. All exams for this course are closed book .

If you are unable to attend any one of the exams, arrangements may be made only if you have a legitimate reason. You need to inform your instructor ahead of time and have written documentation available. If you are unable to attend the exam due to illness or emergency, you also need to inform your instructor before the exam and bring documentation afterwards to request a make-up exam, or the points for that exam will be allocated to other exams.

Grading Information

Determination of Grades

The components of the final grade will be distributed as follows:

- Class Participation : 5% (pop quizzes, pop questions discussion, interaction with instructor, etc.)
- Homework Assignments : 20% (written and programming)
- Recent research paper reading and oral presentation: 5% (date will be assigned)
- Project: 30%
- Midterm exams: 20%
- Final exam: 20%

Digit number grades will be assigned according to the following policy:

92 -- 100	----	A
90 -- 91	----	A-
88 -- 89	----	B+
82 -- 87	----	B
80 -- 81	----	B-
78 -- 79	----	C+
72 -- 77	----	C
70 -- 71	----	C-
60 -- 69	----	D
0 -- 59	----	F

Each assignment and exam will be scored (given points) but not assigned a letter grade.

Final individual class letter grades will be assigned based on the class curve.

Your final class grade can be adjusted up or down depending on your level and quality of class performance.

Project

- A topic of the project (development, implementation, survey, or measurement) of your choice approved by the instructor. (Examples of project will be provided)
- A team of two members is allowed.
- Stage:
 - Literature search
 - CD ROMs: Compendex, Books in Print, SJSU e-books, WWW, etc.
- Reading
- Writing in Journal or conference paper format. (A paper format sample will be provided)

Classroom Protocol and Other Notes

- Absences in attending the first two lectures will be dropped out from the class.
- Every student must attend class and participate actively.
- You will be called in most class sessions to discuss material contained in chapter.
- Pop questions will also be given by using Random Roster Checker.
- **Always start your email subject with "CS268" to get my attention.**
- The pre-requisite to this course (CS 158A or instructor consent) will be monitored.
- It is preferred that you either have taken an undergraduate operating systems class.
- **Cheating** will not be tolerable; a ZERO will be given to any cheated assignment/exam, and will be reported to the Department and the University.
- **Wireless laptop** is required. Your laptop must remain closed (preferably in your backpack and not on your desk) until you are informed that it is needed.
- To encourage participation from students, **no** recording is allowed.
- Students must be respectful of the instructor and other students. For example: turn off/silence **cell phones and other mobile devices**.
- Attendance is crucial to doing well on assignments and examinations.
- Students are responsible for all materials distributed and discussed in the class.

Attendance: University policy F69-24 at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class.

Consent for Recording of Class and Public Sharing of Instructor Material: University Policy S12-7, <http://www.sjsu.edu/senate/docs/S12-7.pdf>, requires students to obtain instructor's permission to record the course: Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material. Course material cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars](http://www.sjsu.edu/provost/services/academic_calendars/) webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes. Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at <http://www.sjsu.edu/advising/>.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/>

CS 268, Topics in Wireless Mobile Networking, Spring 2018, Course Schedule

Tentative Course Schedule (This schedule is subject to change with fair notice.)

Week	Date	Topics, Readings, Assignments, Deadlines
1	1/24	Motivation, Orientation /Syllabus, (Student Information Due)
1	1/29	Introduction: Mobile Wireless Networking: Facts, Statistics, and Trends (HW 1 due)
2	1/31	Trends of mobile wireless networks and applications
2	2/5	Physical Layer: Coding, modulation, and signal propagation
3	2/7	Physical Layer: Coding, modulation, and signal propagation
3	2/12	IEEE 802.11 wireless local area networks
4	2/14	Wireless LANs : 802.11a/b/g/n/ac
4	2/19	Wireless Protocols for IoT: Bluetooth
5	2/21	Wireless Protocols for IoT: Bluetooth Smart
5	2/26	Wireless Protocols for IoT: IEEE 802.15.4 WPAN
6	2/28	Wireless Protocols for IoT: IEEE 802.15.4 WPAN
6	3/5	Software defined mobile networks
7	3/7	Software defined mobile networks

Week	Date	Topics, Readings, Assignments, Deadlines
7	3/12	Introduction to Vehicular Wireless Networks
8	3/14	Midterm Exam
8	3/19	Introduction to Cellular Networks: 1G/2G/3G
9	3/21	Introduction to Cellular Networks: 1G/2G/3G
9	3/26	Spring Recess
10	3/28	Spring Recess
10	4/2	Introduction to LTE
11	4/4	Introduction to LTE-Advanced
11	4/9	Introduction to 5G
12	4/11	Introduction to 5G
12	4/16	Applications of wireless mobile networks
13	4/18	Applications of wireless mobile networks
13	4/23	Mobile cloud computing:
14	4/25	Mobile cloud computing:
14	4/30	Applications of mobile cloud computing
15	5/2	Applications of mobile cloud computing
15	5/7	Security of wireless mobile networks
16	5/9	Security of wireless mobile networks
16	5/14	Review
Final Exam	5/16	Wednesday, May 16 0945-1200